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Docket No.: 10767-US-PA
Application No.: 10/708,198

To the Drawings:

Please replace the currently pending FIG. 7 with the drawing labeled as
"Replacement Sheet" submitted herewith.

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REMARKS

This is a full and timely response to the outstanding non-final Office Action mailed on May 3, 2007. Reconsideration and allowance of the application and presently pending claims are respectfully requested.

Present Status of the Application

The drawings are objected to by virtue of minor discrepancies appearing in FIG. 7. Claim 6 is also objected to because of informalities. In addition, claims 10 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant considers as the invention.

As regards the prior rejections, claims 1 and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Yumoto (WO/2001/006484 A relying upon U.S. Pat. No. 6,859,193 B1 as an English translation; hereinafter "Yumoto"). Further, claims 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yumoto.

In response thereto, Applicant has relabeled the source connected between the switches 620 and 630 as " V_{S2} " instead of " V_{S3} " in FIG. 7 as indicated by the Examiner to obviate the objection to the drawing. Moreover, the term "close to" recited in claims 10 and 13 has been amended to "about" in order to render claims 10 and 13 more definite and specific. The amendments thereto are made for overcoming 112 rejections thereof

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without entering new matter and raising new issue, and thus claims 10 and 13 are now in proper allowable forms.

On the other hand, the prior art rejections are solicited to be withdrawn for at least the reasons provided hereinafter.

Discussion of Office Action Rejections under 35 U.S.C. 102

Claims 1 and 10-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Yumoto. Applicant respectfully traverses the rejection addressed to claims 1 and 10-14 for at least the reasons set forth below.

In order to properly anticipate Applicant's claimed invention under 35 U.S.C 102, each and every element of claim in issue must be found, "either expressly or inherently described, in a single prior art reference". "The identical invention must be shown in as complete details as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F. 2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)." See M.P.E.P. 2131, 8th ed., 2001.

With respect to claim 1, as originally filed, it recites,

"A driving circuit of a current-driven active matrix organic light emitting diode (AMOLED), comprising:

an AMOLED pixel connected to a current source, the current source being used to charge/discharge a capacitor connected to a gate of a driving thin film transistor, and a gray scale of the AMOLED pixel is determined by a magnitude of a current provided by the current

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source; and

a pre-charge switch connected to the gate of the driving thin film transistor and a driving power source, for controlling the driving power source to pre-charge the capacitor before the current source charges/discharges the capacitor.” (Emphasis embedded)

In rejecting Applicant's claim 1, the Examiner has construed that a second thin film transistor TFT2 depicted in FIG. 24 of Yumoto as reading on the driving thin film transistor of the present invention, and an initial value setting element PRC1 of Yumoto as reading on the pre-charge switch of the present invention. With reference to FIG. 24 and the description of Yumoto's disclosure, one end (one of the source/drain) of the initial value setting (precharging) element PRC1 as the PMOS transistor is connected to the power supply potential Vdd, whereas the other end of the PRC1 is connected to the data line (see col. 23, lines 60-62) and to a capacitor Cd. By contrast, in Applicant's claim 1 as stated above, the pre-charge switch as purportedly read on by the PRC1 of Yumoto is connected between the gate of the driving thin film transistor and a driving power source. Thus, Yumoto's PRC1 connecting to the data line and the capacitor Cd does not anticipate the pre-charge switch connecting to the gate of the driving thin film transistor. Moreover, the capacitor Cd connected to the PRC1 of Yumoto does not refer to the capacitor coupled by the second thin film transistor TFT2 as indicated in the present invention. Thus, the coupling of the element PRC1 in Yumoto differs from that of the pre-charge switch in the present invention, rendering the latter novel and patentable over

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the prior art of record.

Secondly, as disclosed in Applicant's claim 1, the present invention is directed to a driving circuit comprising a pre-charge switch for controlling the driving power source to pre-charge the capacitor. That is to say, through the pre-charge switch, voltages are directly written into the capacitor coupled to the gate of the driving thin film transistor, and thereby the driving power source is able to adjust the voltages on the capacitor, so as to supplement insufficient voltages or to release excessive voltages. Due to the fact that the voltages are pre-written into the capacitor, the data-writing time of the pixel circuit reduced. Nevertheless, in comparison with the present invention, the PRC1 of Yumoto pre-charges the capacitor C_d instead of the capacitor C coupled to the gate of the TFT2. Particularly, the PRC1 of Yumoto is adopted to pre-charge the capacitor C_d to a great voltage level (e.g. a threshold voltage of the TFT1 or a higher voltage level), such that less time spending on charging the capacitor C_d by the current of the data line results in significant decrease in the charging time of the capacitor C when the scan line and the data line are driven. The data line is coupled to the gate of the TFT2 through a fetch use transistor TFT 3 and a switch use transistor TFT 4. Accordingly, as the scan line is driven and the TFT 3 and the TFT 4 are turned on, the voltage on the data line is transmitted to the gate of the TFT2. As such, it is unlikely to pre-charge the capacitor C coupled to the gate of the TFT2, and only the capacitor C_d is able to be pre-charged as disclosed in Yumoto.

Furthermore, the pre-charge switch of the present invention pre-charges the capacitor coupled to the gate of the driving thin film transistor, wherein the capacitor is a

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storage capacitor in the pixel circuit. In contrast thereto, the capacitor Cd of Yumoto is not a physical capacitor but a parasitic capacitor on the data line. In view of the foregoing, the aforesaid technical features recited in Applicant's claim 1 are neither taught nor suggested by the prior art of record.

Additionally, as set forth in page 8 of the Office Action, the Examiner has contended that the OLED in FIG. 24 of Yumoto has an anode connected to a negative power source Vdd. In other words, the Examiner construes that Vdd is a negative voltage and that ground is a positive voltage. However, said interpretation is deviated from general understanding in the related field. It is known to people skilled in the art that Vdd represents the positive voltage in most cases, whereas a common voltage level is referred to as ground or Vss. Hence, it is unlikely for the OLED to emit lights according to the Examiner's perspective, and thereby the pixel circuit is not able to be operated.

In light of the foregoing, Applicant respectfully submits the originally-filed claim 1 is neither taught, disclosed nor suggested by Yumoto. As a result, claim 1 should be allowed, and claims 10-11 depending therefrom are submitted to be in proper condition for allowance as a matter of law.

Likewise, in claim 12 of the present invention, the technical features reciting "an AMOLED pixel being connected to a current source and a driving power source for charging/discharging a capacitor connected to a gate of a driving thin film transistor of the AMOLED pixel" and "pre-charging the capacitor by using the driving power source" are claimed. For at least the reasons advanced above, the driving method disclosed in Applicant's claim 12 is substantially different from that provided by the prior

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art of record, rendering Applicant's claim 12 novel and patentable. Applicant therefore respectfully request the withdrawal of the rejections under 35 U.S.C. 102(b) of claim 12 and claims 13-14, depending therefrom.

Discussion of Office Action Rejections under 35 U.S.C. 103

Claims 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yumoto.

For at least the reasons stated hereinbefore, Applicants submit that claims 6, 7, and 9 depend on allowable independent claim 1, and thus should also be allowed.

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CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 1, 6-7 and 9-14 are in proper condition for allowance and an action to such effect is earnestly solicited. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Date :

Aug 1, 2007

Respectfully submitted,

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